FIGURE 1

SEQ ID NO:1 Human CAMKII-α nucleic acid sequence

The sequence in bold and italic was used for transcribing the riboprobe in Example 1.

```
     ttcaggatgg ctaccatcac ctgcacccgc ttcacggaag agtaccagct cttcgaggaa
61   ttgggcaagg gagccttctc ggtggtgcga aggtgtgtga aggtgctggc tggccaggag
121  tatgctgcca agatcatcaa cacaaagaag ctgtcagcca gagaccatca gaagctggag
181  cgtgaagccc gcatctgccg cctgctgaag caccccaaca tcgtccgact acatgacagc
241  atctcagagg agggacacca ctacctgatc ttcgacctgg tcactggtgg ggaactgttt
301  gaagatatcg tggcccggga gtattacagt gaggcggatg ccagtcactg tatccagcag
361  atcctggagg ctgtgctgca ctgccaccag atgggggtgg tgcaccggga cctgaagcct
421  gagaatctgt tgctggcctc caagctcaag ggtgccgcag tgaagctggc agactttggc
481  ctggccatag aggtggaggg ggagcagcag gcatggtttg ggtttgcagg gactcctgga
541  tatctctccc cagaagtgct gcggaaggac ccgtacggga agcctgtgga cctgtgggct
601  tgtggggtca tcctgtacat cctgctggtt gggtaccccc cgttctggga tgaggaccag
661  caccgcctgt accagcagat caaagccggc gcctatgatt tcccatcgcc ggaatgggac
721  actgtcaccc cggaagccaa ggatctgatc aataagatgc tgaccattaa cccatccaaa
781  cgcatcacag ctgccgaagc ccttaagcac ccctggatct cgcaccgctc caccgtggca
841  tcctgcatgc acagacagga gaccgtggac tgc***ctgaaga agttcaatgc caggaggaaa***
901  ***ctgaagggag ccattctcac cacgatgctg gccaccagga acttctccgg agggaagagt***
961  ***gggggaaaca agaagagcga tggtgtgaag aaaagaaagt ccagttccag cgttcagtta***
1021 ***atggaatcct cagagagcac caacaccacc atcgaggatg aagacaccaa agtgcggaaa***
1081 ***caggaaatta taaaagtgac agagcagctg attgaagcca taagcaatgg aggttttgag***
1141 ***tcctacacga agatgtgcga cectggcatg acagccttcg aacctgaggc cctggggaac***
1201 ***ctggttgagg gcctggactt cca***tcgattc tattttgaaa acctgtggtc ccggaacagc
1261 aagcccgtgc acaccaccat cctgaatccc cacatccacc tgatgggcga cgagtcagcc
1321 tgcatcgcct acatccgcat cacgcagtac ctggacgctg gcggcatccc acgcaccgcc
1381 cagtcggagg agacccgtgt ctggcaccgc cgggacggca aatggcagat cgtccacttc
1441 cacagatctg gggcgccctc cgtcctgccc cattgaagga ccaggccagg gtcaa
```

FIGURE 2

SEQ ID NO:2 Human CAMKII-α Amino acid sequence

1 MATITCTRFT EEYQLFEELG KGAFSVVRRC VKVLAGQEYA AKIINTKKLS ARDHQKLERE
61 ARICRLLKHP NIVRLHDSIS EEGHHYLIFD LVTGGELFED IVAREYYSEA DASHCIQQIL
121 EAVLHCHQMG VVHRDLKPEN LLLASKLKGA AVKLADFGLA IEVEGEQQAW FGFAGTPGYL
181 SPEVLRKDPY GKPVDLWACG VILYILLVGY PPFWDEDQHR LYQQIKAGAY DFPSPEWDTV
241 TPEAKDLINK MLTINPSKRI TAAEALKHPW ISHRSTVASC MHRQETVDCL KKFNARRKLK
301 GAILTTMLAT RNFSGGKSGG NKKSDGVKKR KSSSSVQLME SSESTNTTIE DEDTKVRKQE
361 IIKVTEQLIE AISNGGFESY TKMCDPGMTA FEPEALGNLV EGLDFHRFYF ENLWSRNSKP
421 VHTTILNPHI HLMGDESACI AYIRITQYLD AGGIPRTAQS EETRVWHRRD GKWQIVHFHR
481 SGAPSVLPH

FIGURE 3

SEQ ID NO:3: Human TBR1 Nucleic acid sequence (NCBI Accession NM 006593)

The sequence in bold and italic was used for transcribing the riboprobe in Example 1.

1 caggtgatta tcctaattaa tgtctatcta attaaattac tgtcagcagc taaccaatgg
61 caggagccgt ttcatcggct gcacaagcag caagatcaaa agtgagcctt ttctgattgc
121 tgcatagtgt caattggcca atctcttctc ccagggaaaa aaaaaagtaa atcaaacctt
181 tgagaagcat ttgctggttg aagtgctttc tgtctagtga gggggtctgt ggatttctag
241 tttatgataa ataggacttt aaaaaccagg gacgggaggg cgagtgttca ggttctagag
301 ***ctatgcagct ggagcactgc ctttctcctt ctatcatgct ctccaagaaa tttctcaatg***
361 ***tgagcagcag ctacccacat tcaggcggat ccgagcttgt cttgcacgat catcccatta***
421 ***tctcgaccac tgacaacctg gagagaagtt caccttttgaa aaaaattacc agggggatga***
481 ***cgaatcagtc agatacagac aattttcctg actccaagga ctcaccaggg gacgtccaga***
541 ***gaagtaaact ctctcctgtc ttggacgggg tctctgagct tcgtcacagt ttcgatggct***
601 ***ctgctgcaga tcgctacctc ctctctcagt ccagccagcc acagtctgcg gccactgctc***
661 ***ccagtgccat gttcccgtac cccggccagc acggaccggc gcaccccgcc ttctccatcg***
721 ***gcagccctag ccgctacatg gcccaccacc cggtcatcac caacggagcc tacaacagcc***
781 ***tcctgtccaa ctcctcgccg cagggatacc ccacggccgg ctacccctac ccacagcagt***
841 ***acggccactc ctaccaagga gctccgttct accagttctc ctccacccag ccggggctgg***
901 ***tgcccggcaa agcacaggtg tacctgtgca acaggcccct ttggctgaaa tttcaccggc***
961 ***accaaacgga gatgatcatc accaaacagg gaaggcgcat gtttcctttt ttaagtttta***
1021 ***acatttctgg tctcgatccc acggctcatt acaatatttt tgtggatgtg attttggcgg***
1081 ***atcccaatca ctggaggttt caaggaggca aatgggttcc ttgcggcaaa gcggacacca***
1141 ***atgtgcaagg aaatcgggtc tatatgcatc cggattcccc caacactggg gctcactgga***
1201 ***tgcgccaaga aatctctttt ggaaaattaa aacttacgaa caacaaagga gcttcaaata***
1261 ***acaatgggca gatggtggtt ttacagtcct tgcacaagta ccagccccgc ctgcatgtgg***
1321 ***tggaagtgaa cgaggacggc acggaggaca ctagccagcc cggccgcgtg cagacgttca***
1381 ***ctttccctga gactcagttc atcgccgtca ccgcctacca gaacacggat attacacaac***
1441 tgaaaataga tcacaaccct tttgcaaaag gatttcggga taattatgac acgatctaca
1501 ccggctgtga catggaccgc ctgacccccc cgcccaacga ctcgccgcgc tcgcagatcg
1561 tgcccggggc ccgctacgcc atggccggct ctttcctgca ggaccagttc gtgagcaact
1621 acgccaaggc ccgcttccac ccgggcgcgg gcgcgggccc cgggccgggt acggaccgca
1681 gcgtgccgca caccaacggg ctgctgtcgc cgcagcaggc cgaggacccg ggcgcgccct
1741 cgccgcaacg ctggtttgtg acgccggcca acaaccggct ggacttcgcg gcctcggcct
1801 atgacacggc cacggacttc gcgggcaacg cggccacgct gctctcttac gcggcggcgg
1861 gcgtgaaggc gctgccgctg caggctgcag gctgcactgg ccgcccgctc ggctactacg
1921 ccgacccgtc gggctggggc gcccgcagtc ccccgcagta ctgcggcacc aagtcgggct

1981 cggtgctgcc ctgctggccc aacagcgccg cggccgccgc gcgcatggcc ggcgccaatc
2041 cctacctggg cgaggaggcc gagggcctgg ccgccgagcg ctcgccgctg ccgcccggcg
2101 ccgccgagga cgccaagccc aaggacctgt ccgattccag ctggatcgag acgccctcct
2161 cgatcaagtc catcgactcc agcgactcgg ggatttacga gcaggccaag cggaggcgga
2221 tctcgccggc cgacacgccc gtgtccgaga gttcgtcccc gctcaagagc gaggtgctgg
2281 cccagcggga ctgcgagaag aactgcgcca aggacattag cggctactat ggcttctact
2341 cgcacagcta ggccgccccc gcccgcccgg ccccgccgcg gcccggaccc ccagccagcc
2401 cctcacagct cttccccagc tccgcctccc cacactcctc cttgcgcacc cactcatttt
2461 atttgaccct cgatggccgt ctgcagcgaa taagtgcagg tctccgagcg tgattttaac
2521 ctttttgca cagcagtctc tgcaattagc tcaccgacct tcaactttgc tgtaaacctt
2581 ttggttttcc tacttactct tcttctgtgg agttatcctc ctacaattcc cctccccctc
2641 gtctttctct tacctcctac ttctctttct tgtaatgaaa ctcttcacct ttaggagacc
2701 tgggcagtcc tgtcaggcag cagcgattcc gacccgccaa gtctcggcct ccacattaac
2761 cataggatgt tgactctaga acctggaccc acccagcgcg tcctttctta tccccgagtg
2821 gatggatgga tggatggatg gtagggatgt taataatttt agtggaacaa agcctgtgaa
2881 atgattgtac atagtgttaa tttattgtaa cgaatggcta gtttttattc tcgtcaaggc
2941 acaaaaccag ttcatgctta acctttttt cctttccttt ctttgctttt ctttctctcc
3001 tctcatactt tctcttctct ctcttttaat tttcttgtga gataatattc taagaggctc
3061 tagaaacatg aaatactcag tagtgatggg tttcccactt ctcctcaatc cgttgcatga
3121 aataattact atgtgcccta atgcacacaa atagctaagg agaatccacc caaacacctt
3181 taaagg

FIGURE 4

SEQ ID NO:4 Human TBR1 Amino acid sequence

1 MQLEHCLSPS IMLSKKFLNV SSSYPHSGGS ELVLHDHPII STTDNLERSS PLKKITRGMT
61 NQSDTDNFPD SKDSPGDVQR SKLSPVLDGV SELRHSFDGS AADRYLLSQS SQPQSAATAP
121 SAMFPYPGQH GPAHPAFSIG SPSRYMAHHP VITNGAYNSL LSNSSPQGYP TAGYPYPQQY
181 GHSYQGAPFY QFSSTQPGLV PGKAQVYLCN RPLWLKFHRH QTEMIITKQG RRMFPFLSFN
241 ISGLDPTAHY NIFVDVILAD PNHWRFQGGK WVPCGKADTN VQGNRVYMHP DSPNTGAHWM
301 RQEISFGKLK LTNNKGASNN NGQMVVLQSL HKYQPRLHVV EVNEDGTEDT SQPGRVQTFT
361 FPETQFIAVT AYQNTDITQL KIDHNPFAKG FRDNYDTIYT GCDMDRLTPS PNDSPRSQIV
421 PGARYAMAGS FLQDQFVSNY AKARFHPGAG AGPGPGTDRS VPHTNGLLSP QQAEDPGAPS
481 PQRWFVTPAN NRLDFAASAY DTATDFAGNA ATLLSYAAAG VKALPLQAAG CTGRPLGYYA
541 DPSGWGARSP PQYCGTKSGS VLPCWPNSAA AAARMAGANP YLGEEAEGLA AERSPLPPGA
601 AEDAKPKDLS DSSWIETPSS IKSIDSSDSG IYEQAKRRRI SPADTPVSES SSPLKSEVLA
661 QRDCEKNCAK DISGYYGFYS HS

Figure 5

CAMKII-α mRNA Levels in 6 Layers of Dorsolateral Prefrontal Cortex (DLPFC in the Brains of Bipolar patients and Normal Controls

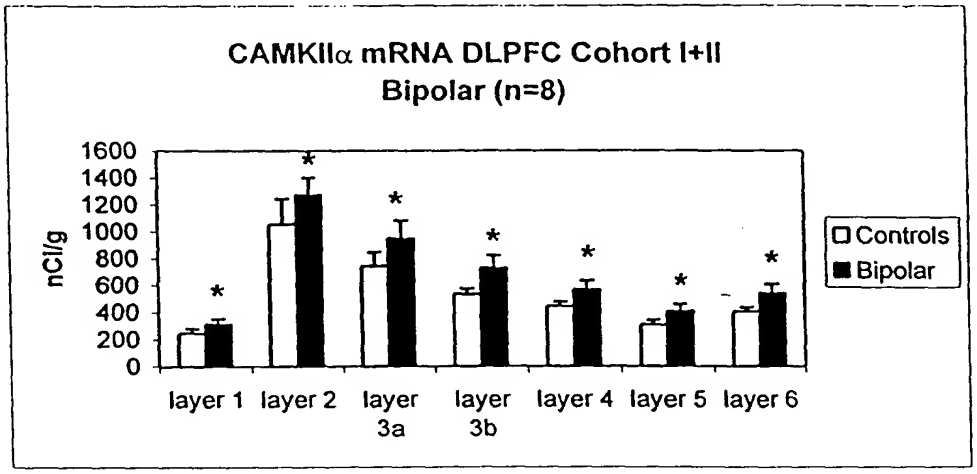

Figure 6

TBR1 mRNA Levels in 6 Layers of Dorsolateral Prefrontal Cortex (DLPFC in the Brains of Bipolar patients and Normal Controls

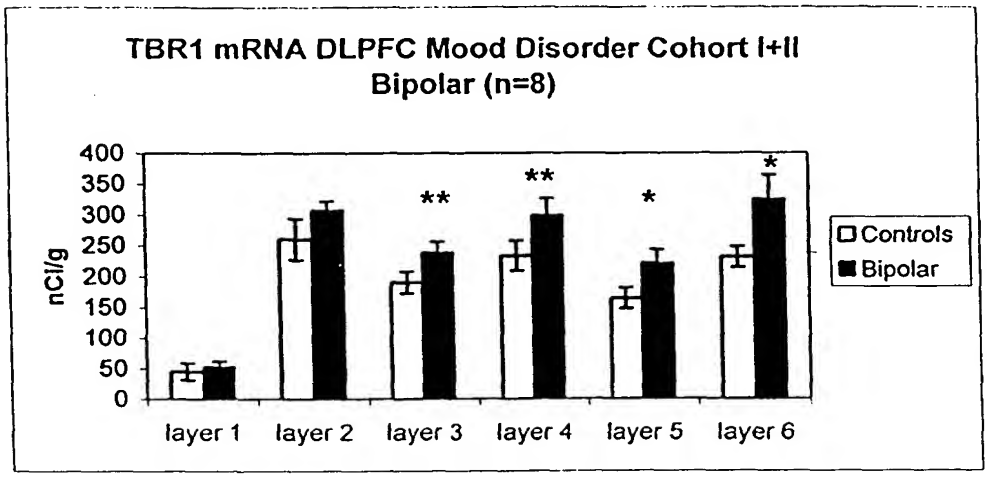

Figure 7

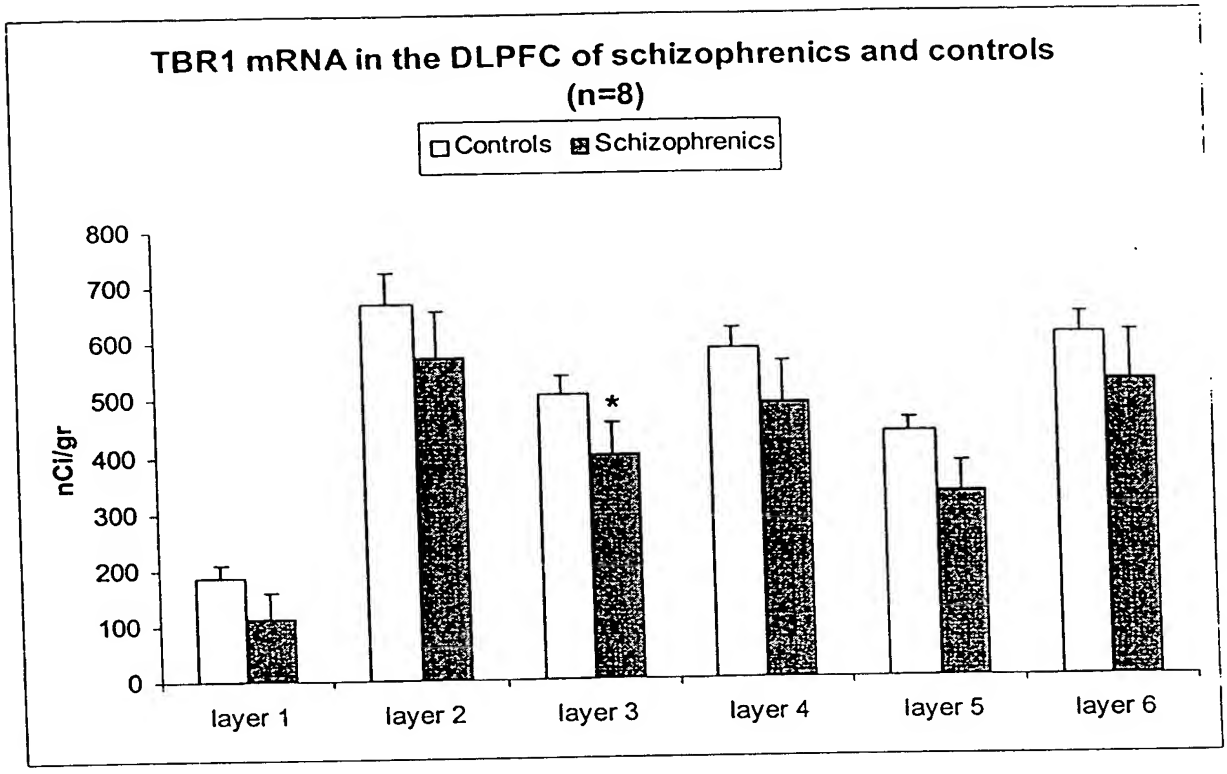
TBR1 mRNA in the DLPFC of schizophrenics and controls
(n=8)
Controls
Schizophrenics
nCi/gr
800
700
600
500
400
300
200
100
0
*
layer 1
layer 2
layer 3
layer 4
layer 5
layer 6

Figure 8

CAMK I nucleotide and amino acid sequence

SEQ ID NO:5

```
   1 ggagagagcc gccgagccga gccgagcccc agctccagca agagcgcggg cgggtggccc
  61 aggcacgcag cggtgaggac cgcggccaca gctcggcgcc aaccaccgcg ggcctcccag
 121 ccagccccgc ggcggggcag ccgcaggagc cctggctgtg gtcggggggc agtgggccat
 181 gctgggggca gtggaaggcc ccaggtggaa gcaggcggag gacattagag acatctacga
 241 cttccgagat gttctgggca cgggggcctt ctcggaggtg atcctggcag aagataagag
 301 gacgcagaag ctggtggcca tcaaatgcat tgccaaggag gccctggagg gcaaggaagg
 361 cagcatggag aatgagattg ctgtcctgca caagatcaag caccccaaca ttgtagccct
 421 ggatgacatc tatgagagtg ggggccacct ctacctcatc atgcagctgg tgtcgggtgg
 481 ggagctcttt gaccgtattg tggaaaaagg cttctacacg gagcgggacg ccagccgcct
 541 catcttccag gtgctggatg ctgtgaaata cctgcatgac ctgggcattg tacaccggga
 601 tctcaagcca gagaatctgc tgtactacag cctggatgaa gactccaaaa tcatgatctc
 661 cgactttggc ctctccaaga tggaggaccc gggcagtgtg ctctccaccg cctgtggaac
 721 tccgggatac gtggcccctg aagtcctggc ccagaagccc tacagcaagg ctgtggattg
 781 ctggtccata ggtgtcatcg cctacatctt gctctgcggt taccctccct tctatgacga
 841 gaatgatgcc aaactctttg aacagatttt gaaggccgag tacgagtttg actctcctta
 901 ctgggacgac atctctgact ctgccaaaga tttcatccgg cacttgatgg agaaggaccc
 961 agagaaaaga ttcacctgtg agcaggcctt gcagcaccca tggattgcag gagatacagc
1021 tctagataag aatatccacc agtcggtgag tgagcagatc aagaagaact ttgccaagag
1081 caagtggaag caagccttca atgccacggc tgtggtgcgg cacatgagga aactgcagct
1141 gggcaccagc caggaggggc aggggcagac ggcgagccat ggggagctgc tgacaccagt
1201 ggctgggggg ccggcagctg gctgttgctg tcgagactgc tgcgtggagc cgggcacaga
1261 actgtccccc acactgcccc accagctcta gggccctgga cctcgggtca tgatcctctg
1321 cgtgggaggg cttgggggca gcctgctccc cttccctccc tgaaccggga gtttctctgc
1381 cctgtccccc cctcacctgc ttccctacca ctcctcactg cattttccat acaaatgttt
1441 ctattttatt gttccttctt gtaataaagg gaagataaaa ccaaaaaaaa aaaaaaaaaa
1501 a
```

SEQ ID NO:6

MLGAVEGPRWKQAEDIRDIYDFRDVLGTGAFSEVILAEDKRTQKLVAIKCIAKEALEGKEGSMENEIAVLHKIKHPN
IVALDDIYESGGHLYLIMQLVSGGELFDRIVEKGFYTERDASRLIFQVLDAVKYLHDLGIVHRDLKPENLLYYSLDE
DSKIMISDFGLSKMEDPGSVLSTACGTPGYVAPEVLAQKPYSKAVDCWSIGVIAYILLCGYPPFYDENDAKLFEQIL
KAEYEFDSPYWDDISDSAKDFIRHLMEKDPEKRFTCEQALQHPWIAGDTALDKNIHQSVSEQIKKNFAKSKWKQAFN
ATAVVRHMRKLQLGTSQEGQGQTASHGELLTPVAGGPAAGCCCRDCCVEPGTELSPTLPHQL"